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KNOWLEDGE

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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HOW TO REDUCE SPORT INJURIES

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Leading on the Edge

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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The Global War on Terrorism continues and with it the demands on our Army. Post 9/11, our Army's engagement exceeds six years of continuous war. Multiple deployments and gained experiences developed our Soldiers into seasoned warfighters, but needless accidents are equally the enemy. To preclude tragedy, the common requirement remains our Soldiers' vigilance in guarding against accidents while simultaneously fighting a relentless enemy.

At the request of a forward-deployed commander, the U.S. Army Combat Readiness/Safety Center deployed a specialized safety team to theater to look closely at specific factors in an environment where high OPTEMPO leaves little room for error. Allow me to share with you some of the findings.

Our Soldiers remain affected by OPTEMPO and external sources, including, but not limited to, multiple or extended tours, family issues, leader involvement, limited resources, training, enlistment waivers or deployment preparation. These sources lead directly to Soldier behaviors such as fatigue, frustration, overconfidence, distraction, complacency and indiscipline. The intensity of the source can increase the intensity or severity of the reaction, such as the fire under a pressure cooker influences the pressure inside the container. Here are some examples:

Multiple or extended tours:

Deployed Soldiers are working long, hard days in a challenging and dangerous environment. Fatigue

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during extended rotations has a detrimental effect on daily operations. A few signs leaders need to watch for in combat fatigue and battle stress include inattentiveness, distraction, complacency, illness and lapses in memory.

Training:

Training programs and opportunities such as HEAT, weapons handling skills and Army Safe Driver Training increase skills and knowledge, preparing Soldiers to safely handle the environments in which they operate. Leadership must continue to develop and ensure their Soldiers are able to participate and maintain pre-deployment training, striving for consistency in operations within theater.

Leader involvement:

As engaged leaders, it is your responsibility to set and enforce the standard - providing a consistent message in all areas of safety. You cannot allow subordinates to pick and choose adherence to safety standards such as wearing seat belts or proper weapons handling techniques.

Leader engagement is the overarching control mechanism between Soldier reactions and possible outcomes. This type of engagement requires leaders to select the harder right versus the easy wrong. Leading requires tough decisions and effective communication to get Soldiers to wholeheartedly commit to the plan. Leader engagement in the safety arena will decrease accidents.

Given the persistent OPTEMPO, it is crucial we continue to educate our young leaders on the importance of doing the right thing ALL the time. Here are some applicable TTPs:

- Address leadership gaps
- Mentor and develop junior leaders in the safety culture
- Recognize risks when modifying vehicles
- Include risk management at every opportunity
- Hold people accountable for their decisions/actions
- Continue leader engagement

In the face of combat or during daily operations in garrison, our Soldiers remain dedicated and highly motivated to successfully complete any and all missions. These Soldiers continue to show resilient commitment, steadfastness in operations to liberate the oppressed and staunchness to secure our way of life against those who mean us harm.

Thank you for all you do to keep our Soldiers safe.

William H. Forrester
Brigadier General, USA
Commanding

FROM THE CSM

"My **DEFINITION** of an **ENGAGED LEADER** is someone who not only **HOLDS** his/her Soldiers **ACCOUNTABLE**, but is **HELD** accountable as well."

MAKING A DIFFERENCE WITH ENGAGED LEADERS

Recently, (Brigadier) Gen. Forrester and I, along with several counterparts, visited with Soldiers in Iraq on behalf of the U.S. Army Combat Readiness/Safety Center to better understand safety-related issues affecting Soldier loss among our ranks. And while we understand progress is being made in regards to our mission, as I talked with Soldiers about accident prevention measures, some of the same problems from my first deployment remain.

For example, Soldiers are still opting not to wear their seat belts while driving in theater. Their reasoning behind this decision hinges on the fear of either being trapped in a vehicle after striking an IED and it catches fire, or not being able to exit if their vehicle becomes submerged in water. While these are valid concerns, please note you can't escape from a burning vehicle if you are unconscious.

Another recurring problem is negligent discharges. In October, a Soldier was killed because of a negligent discharge while on duty. In August, another negligent discharge claimed the life of an off-duty Soldier. While most incidents we investigate involving fatalities are accidental, it still does not make losing Soldiers among our ranks acceptable.

In 2007, we continued making great strides in accidental loss prevention. One reason for this was your efforts as engaged leaders. Engaged leaders exist at each level in our chain of command, no matter the rank. My definition of an engaged leader is someone who not only holds his/her Soldiers accountable, but is held accountable as well.

The November issue of *Knowledge* featured an article describing the sequence of events that led to a senior NCO's death in a motorcycle-related crash. The facts in this unfortunate accident revealed fatigue played a large role in the Soldier's death. Additional factors indicate he was in the company of several fellow senior NCOs leading up to the fatal event.

In this case, we are not only saddened by the loss of a Soldier, father, son and friend, but we also shake our heads in disbelief over the obvious. While no one in particular is to blame in an accident such as this, there are ways to prevent this from recurring.

Again, think about what I mentioned earlier about accountability as an engaged leader. The Army lives off of the three-to-six principle. This unspoken principle indicates every leader should be responsible for three to six Soldiers. In the enlisted ranks, the first sergeant is responsible for his platoon/section NCOs; they, in turn, are responsible for their squad leaders, who are responsible for their Soldiers.

The common bridge in this month's column—whether it is seat belt use, negligent discharges or driver error—is engaged leadership can and will make a difference in saving lives in our formations. On or off duty, ensure you are communicating composite risk management to your Soldiers, as well as holding them accountable. «

Tod L. Glidewell
Command Sergeant Major
U.S. Army Combat Readiness/Safety Center

Pushin' My Luck

LT. COL. SCOTT TUFTS
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Hanging upside down in my driver seat restrained by my seat belt I was thinking, "How did I get here? What did I do to get myself into this situation?" All I could see through my windshield was the snow on the ground. Then I suddenly heard knocking on my window and my buddy asking, "Scott, are you OK?"

How did my Ford Explorer end up on its roof on the side of Interstate 70 in Kansas? To answer that question, I need to go back 11 hours to 10 a.m. It was a Friday in February and my buddy, Tom, and I had just graduated from the Battalion Motor Officer Course at Fort Knox, Ky. As soon as the graduation was over, we changed clothes, checked out of our hotel and hit the road. We needed to get back to our unit at Fort Carson, Colo., by Monday morning. Although it was a 1,200-mile drive, Tom and I figured we could make it by Saturday morning if we drove through the night. We had our own vehicles, so we decided to follow each other.

Initially, the trip went well. However, as we passed Kansas City, Kan., on I-70, we ran into a blizzard. It caught us by surprise because neither of us checked the weather conditions for our route before we left. I was in the lead, following an 18-wheeler. The blowing snow had cut my visibility to less than 20 feet and I could barely see the back of the tractor-trailer.

Sunset was around 6 p.m. By 7 p.m., we started seeing cars pulling off the side of the highway—their drivers stopping because of the poor visibility. However, this did not deter us. All we were concerned about was getting home as fast as we could.

The snow plows were working hard, their blades piling up snow along the sides of the highway. We began encountering black ice on the road. We watched as some of the cars ahead of us fishtailed, went off the highway and plowed into the snow-piled embankments. One car in particular, driven by an elderly gentleman, slid into the grass median. Being good samaritans, we pulled over to help him. We pushed his car back onto the road so he could get going again.

Ironically, although I'd been pushing my luck all day, it wasn't until after we'd rendered assistance that my luck changed for the worse. Once the elderly gentleman was on his way, I got back into my truck, buckled up and started to merge with the traffic. My Explorer had four-wheel drive, but I didn't use it because I didn't want to get out and manually lock the hubs. Besides, the snow was letting up and visibility was improving. However, because it was dark, I didn't see the ice ahead of me. I had slowly accelerated to 30 mph when the back of my vehicle suddenly began to fishtail. I turned the wheel and pumped my brakes—but I couldn't stop sliding. The Explorer slid from the left-hand lane across the right-hand lane and onto the right shoulder. The right side of my Explorer hit the piled-up snow on

LEFT BEHIND AND LOS

As your unit deploys, what will happen to those Soldiers who arrive too late to go with you? While they're training for combat, who is training them to be safe? Some of these Soldiers are being lost before they ever arrive in theater.

It goes without saying that the mission of the rear detachment is huge; you certainly don't need us to bring that to your attention! Recently, the Army suffered the loss of two Soldiers who were at a rear detachment pending assignment to their parent unit in Iraq. In a different accident, a single-vehicle motorcycle crash killed another rear-detachment Soldier.

In the first accident, the brigade rear detachment formed a single platoon consisting of Soldiers conducting individual readiness training as they prepared for deployment. Subsequently, as new Soldiers arrived, the platoon grew to 42 Soldiers. With the experienced NCOs deployed, the rear detachment's leadership assigned a sergeant with only five years' service time as platoon sergeant, while other junior sergeants were made squad leaders. We all understand that most sergeants with so little time in service don't have the experience to assume duties as a platoon sergeant. However, sometimes you've got to go with what you've got, and that's what this unit was faced with. Unfortunately, because of his inexperience, the young sergeant failed to complete several locally mandated safety requirements. Among those were privately owned vehicle inspections and counseling his Soldiers on safety requirements, including those required by the installation.

In the motorcycle crash, the Soldier's chain of command lacked experience. The company commander was a second lieutenant with less than one year of service. While the division's policies regarding motorcycle riders were very clear, the unit failed

the embankment and then flipped over. Only my seat belt kept me from being thrown around inside my vehicle and ejected or seriously injured.

I could have missed all this excitement had I considered the risks before taking off on my trip. For example, had I checked the weather, I wouldn't have been surprised by the blizzard. I should have also planned a more reasonable trip schedule—one with an overnight stay and rest breaks. Trying to drive 1,200 miles straight through was a sure setup for fatigue—something you don't need when you're driving.

So how much did it cost me to be in a hurry? Well, it took me longer to get to Fort Carson than I'd planned. In dollars and cents, the damage to my truck ran $3,245. I was fortunate my insurance covered $2,900 of that. However, I was even more fortunate this accident didn't cost me my life. Wearing my seat belt kept me alive so I could pass along these lessons learned. That said, preventing accidents is better than surviving them. Before you take off on your winter trip, go to the U.S. Army Combat Readiness/Safety Center Web site at https://crc.army.mil and check out the Travel Risk Planning System, commonly referred to as "TRiPS." I can tell you from experience, looking at your computer right-side-up beats looking out your windshield upside-down! «

ROAD TRiPS

Want to increase your chances of avoiding a fatal vehicle accident by more than 400 percent? The good news is you don't have to be lucky—you just have to be smart and use your computer. The reduction in Army accident fatalities shows TRiPS works. Of some 846,000 TRiPS assessments done during fiscal 2007, only two Soldiers died in vehicle accidents.

But why does it work so well? The answer is it gets leaders involved with their Soldiers' travel plans early on so they can plan to avoid highway hazards. With privately owned vehicle crashes leading all other causes of accidental death, it's only logical for leaders to want to keep their Soldiers safe on the road.

The program's success is reflected in Army Regulation 385-10, *The Army Safety Program*. This regulation provides that all Soldiers on leave, pass, temporary duty or permanent change of station—along with all Army civilians traveling TDY or relocating from the local area—use TRiPS. By helping prevent POV fatalities, TRiPS protects families from grief and formations from loss—bolstering both morale and readiness.

An Army safe is an Army strong.

MASTER SGT. (RET) MIKE BARKSDALE
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

to enforce these policies. The accident investigation attributed much of this failure to lack of involved and experienced leaders.

As you might guess, there is a direct correlation between lack of experience and increased accidents. In this case, the accident investigation determined the leadership's inexperience contributed to the accident. After all, wouldn't you consider a platoon at a significantly higher risk if its platoon sergeant had only five years' Army experience and its squad leaders had even less? Doesn't this boil down to step one of composite risk management—identifying the hazards? However, if all you have are inexperienced junior leaders, what can you do to control the risks?

Working at a rear detachment is a tough job fraught with new challenges every day. In too many cases, younger leaders lack the experience necessary to prevent accidents. Therefore, senior leadership must stay engaged and embrace CRM. They must also provide younger leaders the tools necessary to bridge the gap in their experience so they can "Lead on the Edge!" «

DRIVE TO ARRIVE ALIVE

1ST LT. ERIK JOHNSON
Indiana Army National Guard

Winter is upon us and, depending on their location, Soldiers are encountering various weather conditions. Regardless the weather, missions must go on, so Soldiers must be prepared to drive in all types of conditions, including snow, ice or fog. Soldiers facing these challenges must have the facts and skills necessary to complete their missions safely and successfully.

Snow

Snow forms when water vapor in the air freezes and creates small ice crystals. Some common hazards associated with driving in snow include reduced visibility and traction, reduced directional control and increased braking distance. When snow melts and refreezes, however, drivers encounter even more hazardous road conditions. Intersections, high-traffic areas and shady spots exposed to direct sunlight earlier in the day are all prone to ice over from melted snow. During snowy conditions, drivers must reduce their speed, brake moderately, make turns slowly and increase the following distance between vehicles.

Ice

Another dangerous condition associated with winter weather is windshield icing. Windshields and other glass surfaces can ice over when the temperature is low enough

to freeze moisture on ground surfaces. Conditions are ripe for windshield icing any time there's visible ground haze. All ice must be removed from the vehicle's windshield and other windows before operations begin. Preventive Maintenance Checks and Services should be performed on each vehicle to ensure the defroster and heater system are functioning properly. It's a good idea to keep an ice scraper in each vehicle just in case the defroster stops working.

Black ice—a thin sheet of ice on a dark roadway—is extremely dangerous because it's hard for drivers to detect before they're actually on it. Black ice forms when light rain or drizzle falls on a road surface below 32 F or when super-cooled fog droplets accumulate on bridges and overpasses. A roadway covered with black ice appears wet when the ambient temperature is below freezing.

Drivers must use extreme caution when driving on black ice. Vehicles that hit black ice have greatly reduced traction, very little braking capability and extremely poor directional control—all problems that heighten the possibility of skidding. Ideally, vehicles should not be driven in black ice conditions. However, if the mission must go on, drivers should reduce their speed, accelerate very slowly, increase the following distance between vehicles, brake very lightly and make all turns gradually and slowly.

Frost heaving, a condition related to icing, is the uneven lifting and distortion of the ground close to the surface. Frost heaving is the result of water within the soil freezing and expanding. This expansion might damage the road surface and loosen tree roots. The biggest danger associated with frost heaving is the possibility of trees falling across roads, but uneven road surfaces are much more common. Such uneven surfaces can interrupt directional control, which is especially problematic in areas such as curves. Drivers should slow down and look for buckled or uneven patches on the road during freezing weather.

Fog

Valley fog forms when cold, dense air drains from areas of higher elevation into low areas or valleys. As the cool air accumulates in the valley, the ambient temperature sometimes decreases to the dew point temperature and creates dense fog. When driving in fog, drivers should expect reduced visibility and turn on the vehicle's lights, slow down and increase the following distance between vehicles.

Freezing fog is composed of super-cooled water droplets that form when the temperature falls below 32 F. These droplets freeze and form ice as soon as they contact a cold surface. Freezing fog creates driving problems such as reduced visibility, poor traction and directional control and possible skidding. Drivers should turn on their vehicle's lights, reduce their speed, accelerate slowly, increase the following distance between vehicles, brake moderately and make turns slowly.

Conclusion

Remember these guidelines when you're performing mounted patrols and missions this winter and, most importantly, SLOW DOWN! The cold won't last forever. If you and your Soldiers make it through the winter accident-free, you'll have even more reason to celebrate when spring finally comes! «

> "**REGARDLESS** the weather, **MISSIONS** must **GO ON,** so **SOLDIERS** must be **PREPARED** to drive in **ALL** types of **CONDITIONS,** including **SNOW, ICE** or **FOG.**"

APACHES D

U.S. ARMY COMBAT READINESS/SAFETY CENTER
Fort Rucker, Ala.

Editor's Note. The call names of the aircraft and the designations of the forward operating bases involved have been changed for the purposes of this article.

First Apache Accident

Two AH-64D aircrews were given the mission to reposition their aircraft from Forward Operating Base Sandy to FOB Cameroon to support a special mission. The crews consisted of Brevet 18 in the lead and Brevet 15 flying trail. The flight departed late due to a brief weather hold and a minor maintenance problem. When the Apache crews arrived at FOB Cameroon, their mission was changed. They were told they would perform the quick reaction force mission for FOB Cameroon. In their place, FOB Cameroon's QRF would perform the mission originally planned for the Apaches.

Upon completion of the special mission, Brevet 18 and Brevet 15 departed FOB Cameroon en route to FOB Sandy. It was a dark, moonless night with limited visibility. Brevet 18 was leading Brevet 15 up through a draw when Brevet 18 encountered fog. In response, both aircraft began a coordinated 180-degree right turn to return out of the draw. During the turn, Brevet 18 unexpectedly entered instrument meteorological conditions. The crew failed to execute appropriate inadvertent IMC procedures. As a result, while attempting to regain visual contact with the ground and Brevet 15, Brevet 18 crashed into the side of a mountain.

Fortunately, both crewmembers of Brevet 18 survived. After extricating each other from the aircraft, they moved to a concealed location. Using their survival radio, they contacted an Air Force aircraft in the area and reported their situation. After confirming a rescue mission was underway, Brevet 15's crew returned to FOB Sandy.

Why did Brevet 18 crash?

The accident board determined through post-accident interviews that the pilot in command lacked experience. As a result, he was not confident in his abilities to fly under instruments in the conditions he had encountered.

Second Apache Accident

Upon notification of Brevet 18's crash, the Air Force launched two HH-60s from FOB Cameroon to rescue the downed crew. However, bad weather prevented the Air Force HH-60s from reaching the crash site. At FOB Sandy, two AH-64s launched to support a pair of Black Hawks performing a medical evacuation operation (not related to Brevet 18's crash). Bad weather prevented the Apaches from linking up with the Black Hawks, so the two AH-64s returned to FOB Sandy. On their way back, they scouted for alternate routes to reach Brevet 18's crew.

After returning to FOB Sandy, Brevet 11 and Brevet 16 linked up with Delta 06, a Black Hawk from their unit, and departed for Brevet 18's crash site. As they headed toward the crash site, they used a different route than the Air Force had tried. Delta 06 was the air mission commander and flew in the lead with Brevet 11 flying behind him and Brevet 16 in the trail position. Delta 06 had two pilots, two crew chiefs, a flight medic and an aeromedical physician's assistant onboard. Just before arriving at the crash site, Brevet 16's PC had trouble with his night vision system picture, but decided to press on using both the target acquisition designation sight and night vision goggles. Unable to regain any ground references, the pilot became spatially disoriented. Brevet 16 lost rotor speed and crashed into the same mountain as Brevet 18. Fortunately, both of Brevet 16's crewmembers survived. The two crash sites were about 1,600 meters apart.

When the accident occurred, Brevet 11 was climbing in a left-hand turn

OWN!

to enter a racetrack pattern and attempting to contact Brevet 16. After Brevet 11's aircrew recognized they had lost communication with Brevet 16, they heard a faint "mayday" call. They then informed Delta 06 there might be another aircraft down. Delta 06 remained focused on locating Brevet 18 while the crew of Brevet 11 began searching for Brevet 16. Delta 06 located Brevet 18's crew, but had to land about 400 meters uphill from them because of the terrain. Delta 06 dispatched their crew chief and flight medic to assist Brevet 18's crew and provide security. After waiting about 45 minutes, Delta 06 was informed that the severe injuries to the downed aircrew and the rough terrain would delay their getting to the extraction point by another hour. With fuel running low, Delta 06 dispatched the aeromedical physician's assistant to assist the flight medic in getting Brevet 18's crew to the extraction site. With the crew chief now back onboard, Delta 06 returned to FOB Sandy for refueling. En route to FOB Sandy, Delta 06 located Brevet 16's crash site and extracted the crew.

When they got back to FOB Sandy, the crews from Delta 06 and Brevet 11 went to the tactical operations center to meet with unit leaders and plan a follow-on rescue operation. As the crews prepared their aircraft for the rescue mission, Brevet 11 experienced a maintenance malfunction and was pulled from the mission. Delta 52, a UH-60L, had been prepared as a backup for the mission and launched with Delta 06. While en route to Brevet 18's crash site, Delta 52 entered IMC, climbed to a safe altitude and circled overhead. Delta 06 continued to the crash site and completed the rescue mission. Delta 06 and Delta 52 then both returned to FOB Sandy.

Why was Brevet 16 lost?

The PC in Brevet 16 was driven by a sense of urgency and the desire to save his fallen comrades. When faced with trouble with his night vision device, he chose not to alter his in-flight planning and abort the mission, as required by Training Circular 1-251, *Aircrew Training Manual Attack Helicopter, AH-64D*. Unfortunately, as he attempted to press on with the rescue, he crashed his aircraft and his co-pilot/gunner was injured and later transported to the Army hospital in Landstuhl, Germany.

Lessons Learned

The aircrews of both crashed Apaches were very fortunate to have survived these accidents. They were dealt sets of circumstances that would have been challenging for even the most experienced aviators. The Army trains pilots to meet and maintain published standards. The same standards must be enforced on every task, whether it is performed individually or as a part of a larger operation. The drive to save a fallen comrade must include an accurate assessment of the hazards so the best course of action can be chosen. Regrettably, both aircrews failed to execute the prescribed procedures for the conditions they encountered and, as a result, crashed. These accidents resulted in the destruction of two AH-64D aircraft. Their crewmembers are lucky to be alive today. «

Disease

A Soldier's Ancient Enemy

1ST LT. ERIK JOHNSON
Indiana Army National Guard

During the period of the Roman Empire, armies on campaign might suffer more casualties due to disease rather than engagement with enemy combatants. As recently as the Civil War, armies in the field were known to lose Soldiers to disease and combat at about a 50-50 ratio. Fortunately, advances in medicine have greatly improved Soldier survivability while on campaign in environmentally hostile foreign lands. Even so, Soldiers should be ever-vigilant in warding off disease through a few countermeasures.

Before we discuss these disease prevention techniques, let's investigate some of the more harmful threats to health and life Soldiers may encounter in the field. Soldiers should be primarily concerned with infectious diseases originating from two ever-present sources—water and insects. Since every Soldier's essential sustenance on the battlefield is water, let's first examine the hazards that may be found in collected or pooled water.

Amoebic and bacillary dysentery are illnesses spread by contaminated water. The symptoms of amoebic dysentery include fatigue and, possibly, fever. While the victim's excrement may be solid, it will emit a foul odor and contain blood and mucus. Treatment for amoebic dysentery involves heavy consumption of fluids, along with rest and the administration of an antibiotic. Symptoms of bacillary dysentery include high temperature, which comes on suddenly, and excrement tinged with blood. Treatment for bacillary dysentery consists of antibiotics, rest and the consumption of copious amounts of fluids to help prevent dehydration.

Like the two illnesses above, infectious hepatitis enters the body through contaminated water. The symptoms of this disease include pain in the abdomen, nausea and loss of appetite. A more recognizable outward symptom of infectious hepatitis is the yellowish hue of the victim's skin.

> **YOUR** unit's medical staff is the **BEST RESOURCE** for **ANSWERING ANY QUESTIONS** regarding a particular theater of **OPERATIONS** and its attendant **IMMUNIZATION SCHEME.**

Treatment includes lots of rest and careful nursing. Poliomyelitis, or polio, is also contracted via the consumption of contaminated drinking water. The disease attacks the central nervous system and can cause total paralysis. Fortunately, poliomyelitis can be successfully treated by applying hot packs to the victim's muscles and, of course, attentive nursing.

Insect-borne diseases, which are just as dangerous as their water-borne counterparts, are also a threat to Soldiers. It is important to remember to always apply insect repellant where insects are a hazard. Moreover, do not camp near swamps or stagnant water, as these areas are a haven for mosquitoes.

When discussing insect-borne diseases, malaria is probably the first illness that comes to mind. While one might be tempted to think of malaria as strictly a tropical disease, this is not true. Virtually any area within a warm climate is susceptible to hosting this dreaded disease.

Malaria is transmitted via the saliva of the female Anopheles mosquito. Symptoms of the disease include a fever which recedes and recurs with characteristic cold sweats and violent shivers. Victims are left weak and exhausted even after successful treatment. The good news is a regimen of tablets taken just before anticipated exposure may protect an individual from contracting malaria. Be sure to ask your unit's medical staff about this particular protocol. As for treatment, antimalarial drugs such as Larium™, Malarone® and Paludrine® are available. Consult your medical staff regarding which drug will offer the best treatment.

Dengue fever is also spread via mosquitoes. Symptoms include fever, as well as a rash and muscle and joint pain. For treatment, medical science only offers rest. There is no vaccine or cure for dengue fever, and it may take up to several weeks for the victim to fully recover.

Yellow fever is another insect-borne disease with no drug treatment. However, a vaccine is available, so inquire about it before deploying overseas. Symptoms of yellow fever include (you guessed it) fever, nausea and perhaps even a slowed heart rate. In severe cases, this disease may cause liver damage, eventually escalating to jaundice and kidney failure. Treatment options are limited to rest and diligent nursing.

Typhus is actually a term used to describe a group of diseases which are more typically spread by fleas, mites and ticks. The symptoms include headache, coughing and back pain and lead to fever, rash and even mild delirium. Victims may also experience a weak heart rate. Treatment for typhus includes antibiotics; however, there is a vaccine available. Ask your unit's medical personnel about this vaccine before your next deployment.

Hopefully, the point has been made that these diseases are to be taken as a serious threat to Soldier survivability in country. Their symptoms are severe and, in some cases, life threatening.

Make certain you have received all appropriate immunizations before deploying. Your unit's medical staff is the best resource for answering any questions regarding a particular theater of operations and its attendant immunization scheme.

Since ancient times, it has behooved Soldiers to exercise individual precautions against disease. Yes, the enemy combatant is always of primary concern. However, take steps to keep an unseen and ever-present enemy from taking you out of the fight. We understand both these threats can injure, maim or kill, and one is no less your enemy than the other. So, aggressively take the fight to the enemy and stay healthy, stay safe and stay alive. Army Safe is Army Strong! «

For more information on these and other diseases, visit the U.S. Army Center for Health Promotion and Preventive Medicine at http://chppm-www.apgea.army.mil/.

HABIT FORMING

In preparing to combat these diseases, consider the following tips:

- **Purify all drinking water and clearly mark it as such**
- **Never eat with utensils that have not been properly sterilized**
- **Always wash your hands before handling food**
- **Try to shield your food and beverages from insects furthermore, try adopting the following habits:**
- **Bury your excrement when no latrine is available**
- **Clothe your entire body to reduce the likelihood of insect bites**
- **Avoid standing in water inside an at-risk area**
- **Wash your body as often as the tactical situation permits, but DO NOT swallow any of the water**

HAVE A SEAT

PERRY WILDS
U.S. Army Combat Readiness/Safety Center
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"My back hurts and my legs are falling asleep when I fly; why can't I use just any seat cushion?" This is a question a lot of aviators are asking. Read on! We have the answer.

The answer is simple. It's because a crashworthy seat system is just that, a system. If you change any component of that system, you're not just increasing your risk of a debilitating back injury; you're risking your life. Yes, I did say your life.

We know current rotary-wing operations in combat often require aircrews to sit continuously for six to 12 hours in the cockpit. With this increased exposure and resultant pain, aircrews are reporting decreased concentration and situational awareness. This leads to errors and/or premature mission termination and, ultimately, could adversely impact tactical and strategic objectives. Long hours in the cockpit, ineffective seat padding, poor posture, continual use of night vision goggles and constant vibration can contribute to strain and fatigue in the lumbar muscles. For those aviators involved in a mishap, the sudden deceleration can create stresses resulting in an acute back injury or leaving them predisposed to chronic pain for the rest of their career. The pain can be a mild, intermittent annoyance, or it might be so debilitating that it affects safety of flight.

If you're involved in anything from an accident to a hard landing, you could experience a phenomenon known as "dynamic overshoot." Dynamic overshoot is defined as the amplification of decelerative crash forces experienced by the occupant above the vehicle's decelerative force. Dynamic overshoot can be attributed to the response of the non-rigid components reacting to the dynamic input pulse. How much it is amplified depends on the elastic properties of your harness material, the rebound properties of the seat's foam padding and the human body's naturally compliant characteristics. Essentially, the entire system—including the occupant, seat and restraint—represents a spring-mass-damper. As such, the dynamic overshoot is a function

of the natural frequency and damping characteristics of the total system.

Two factors greatly influence your risk of injury—the energy absorption ratio of the cushion material and your buttocks reference point (where you're sitting on the seat). When we talk about the energy absorption ratio, we are concerned with the amount of energy the cushion absorbs and how much energy it rebounds. Key factors for the buttocks reference point are the cushion thickness and shape. The military standard for aircraft cushions is quite clear. When you are seated on the cushion, the bottom of your buttocks should be no more than three-quarters of an inch above the hard pan. If the cushion places your buttocks any higher than that, it will increase your risk of dynamic overshoot.

If the cushions are "worn out", they need to be replaced. Like everything else, cushions have a lifespan. Several factors influence this lifespan, so the next time you sit in a seat and the cushion feels flat, write it up and have it replaced.

Other key factors involved in the design of the seating system are:

- The restraint systems, along with the cushions, provide the interface between the occupant and the rest of the seating system, performing a critical function in providing occupant safety during a crash.
- Pilot visibility is a good example where the integration issue plays an important role and is a factor in maintaining survivability in the combat theater. The relationship between occupant size, seat position and aircraft configuration has a significant effect on mission effectiveness.

According to the Department of the Army's Occupant Crash Protection Handbook, achieving an optimal occupant crash protection concept for a specific vehicle involves decisions that must be consistent with Army Risk Management Decision Criteria. In general, there are four interrelated factors to consider in making these decisions:

1. Anticipated crash impact conditions including, velocity, force, attitude
2. Injury tolerance levels
3. Vehicle restrictions such as, space, weight, hard-point availability
4. Cost

The importance given to each element depends on the specific situation.

So, to answer the question, "Why can't I use just any seat cushion?" The answer is the crashworthy seating system installed in today's helicopters was designed and tested as a system. Each component of that system has a specific purpose, whether it is for crash attenuation, dynamic overshoot prevention, providing the optimal buttocks reference point, properly interfacing with the restraint system or to provide you with optimum visibility. Modifying the seating system without thorough testing can cost you your life during an otherwise survivable crash.

ALL aircraft program managers know there are problems with seat cushions and are working with the U.S. Army Aeromedical Research Laboratory and commercial venders on a solution. So, before you use or purchase any item affecting aircraft life support equipment or crash attenuation, ask yourself if you would be willing to bet your life on that piece of equipment. Don't believe everything you read on a commercial Web site and don't let comfort override safety! «

> "Like everything else, **CUSHIONS** have a **LIFESPAN**. Several factors **INFLUENCE** this lifespan, so the next time you **SIT** in a **SEAT** and the cushion **FEELS FLAT**, write it up and **HAVE IT REPLACED**."

Editor's note: This article is based on an OH-58D(R) Class A accident where the pilot placed an aftermarket seat cushion on top of the original aircraft seat to make it more comfortable to fly. The pilot was fatally injured during the crash. Changing either the buttocks reference point or the energy absorption ratio of the cushion will lead to increased energy forces applied to the body during an accident. This can make an otherwise survivable accident deadly.

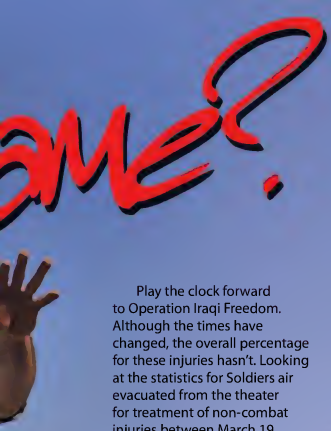
You Got Ga

BOB VAN ELSBERG
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

You hear about how injuries on the battlefield take Soldiers out of the fight, but how about injuries on the basketball court, softball field or in the weight room in the gym? The issue is more serious than you might think and is cutting into Army readiness stateside and combat power overseas. Just how big is this problem? The U.S. Army Center for Health Promotion and Preventive Medicine recently developed a poster based upon a study of physical training and sports-related injuries. We have summarized the information in that poster in this article and are also providing some sports safety tips suggested by USACHPPM. It is important for leaders to take a few minutes to review this information and consider how reducing these injuries can help maintain their unit's combat power.

The Cost Downrange

Participation in sports and physical training is recognized as a leading cause of injuries among Soldiers. Looking back in history, during the Persian Gulf War these sports injuries accounted for nearly 18 percent of non-combat-related Soldier hospitalizations. Those hospitalizations resulted in significant lost duty time and decreased military readiness.



Play the clock forward to Operation Iraqi Freedom. Although the times have changed, the overall percentage for these injuries hasn't. Looking at the statistics for Soldiers air evacuated from the theater for treatment of non-combat injuries between March 19, 2003, and June 30, 2006, it's still roughly 18 percent. The next paragraph details the major injury producers and types of injuries suffered by Soldiers.

Sports and PT injuries were the second-leading cause of non-combat injuries and resulted in 1,042 Soldiers being air evacuated from the theater for treatment from March 2003 through June 2006. The primary sports were basketball (27.1 percent), football (19.9 percent), PT (19.0 percent) and weightlifting (10.5 percent). The leading injury types were fractures (26 percent), dislocations (21 percent), disorders of muscle/tendon (15 percent) and sprains/strains (11.9 percent). Injuries primarily involved the knee (28 percent), wrist/hand (15 percent), ankle/foot (13 percent), shoulder (12 percent) and lower leg (7 percent).

The Cost at Home

Just as with deployed Soldiers, participation in sports and PT is an issue for concern with Soldiers at home station. Because sports-related injuries result in significant lost duty time and decreased military readiness, reducing these injuries has been an important area of focus for Army injury prevention efforts.

During calendar years 2004 and 2005, sports accidents involving non-deployed Soldiers were the fourth-leading cause for injury hospitalizations. Looking over a five-year span from calendar years 1989 through 1994, the leading causes of sports injuries were basketball (23 percent), football (22 percent), softball (8 percent) and PT (6 percent). It should be noted that the importance of sports injuries is not unique to the Army. Each year, an estimated 7 million Americans are treated for sports and recreation-related injuries.

Table 1. Distribution of cause of injury for non-combat injuries air evacuated from Operation Iraqi Freedom (March 2003 -June 2006).

CAUSE OF INJURY	FREQUENCY (n=5845)	PERCENT (%)
Falls/Jumps	1047	17.9
Sports/physical training	1042	17.8
Motor vehicle crashes	958	16.4
Crushing or blunt trauma	503	8.6
Lifting, pushing, pulling	484	8.3
Twisting, turning, slipping	399	6.8
Shoes and clothing	234	4.0
Cutting and piercing	183	3.1
Handling weapons/ammunition	174	3.0
Environmental	167	2.9
Other specified	654	11.2

Table 1 presents the distribution of causes of injury for the non-combat injuries with an identified cause (n=5,845). The 3 leading causes were falls (17.9%), sports/physical training (17.8%), and motor vehicle crashes (16.4%). The mean (± SD) age for soldiers with a sport/physical training-related injury was 30 ± 8 years and 94.2% were males.

An Overall View

Participating in sports is an important and appropriate leisure time activity for Soldiers during deployments and at home station. While Soldiers are required to perform PT, participating in sports allows them to enhance their physical fitness and encourages a healthy lifestyle. However, when Soldiers are injured during these activities, the result can be significant lost duty time and decreased military readiness. Therefore, leaders need to consider their Soldiers' safety during exercise and sporting activities. The following are some tips suggested by USACHPPM that can help Soldiers stay fit to fight.

General Recreational Safety

- Organized sporting events should have referees who understand the game and will enforce the rules.
- Stay physically fit. Fit Soldiers have a lower risk for injury.

- Start with a warm-up that includes active movement drills similar to the activities involved in your sport.
- Dress appropriately for your sport and weather conditions.
- Wear mouth guards whenever contact with other players is possible.
- Wear eye protection appropriate for your sport. Each sport or recreational activity has its own protective needs. Some of those are addressed by standards published by the American Society for Testing and Materials (ASTM). Industrial safety glasses and goggles are not considered protection for sports.

Table 2. Distribution of sports activities that caused non-combat injuries requiring Soldiers to be air evacuated from Operation Iraqi Freedom (March 2003 -June 2006).

SPORT ACTIVITY	FREQUENCY (n=1042)	PERCENT (%)
Basketball	282	27.1
Football	208	19.9
Physical Fitness Training	198	19.0
Weight Lifting	110	10.5
Softball	56	5.3
Wrestling & Martial Arts	49	4.7
Volleyball	35	3.4
Soccer	26	2.5
Frisbee	11	1.1
Boxing	10	1.0
Swimming/Diving	10	1.0
Other specified	47	4.5

Table 2 presents the distribution of sports activities causing injuries that required air evacuation from OIF. The 4 leading sporting activities were basketball (27.1%), football (19.9%), physical fitness training (19.0%), and weight lifting (10.5%).

Basketball

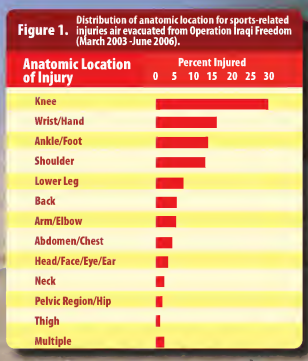
- Warm up with gradually more intense basketball and movement drills.
- Wear appropriate basketball shoes.
- Remove rings and jewelry.
- Ensure the playing surface is clean and in good condition.
- Check the court and sidelines for trip hazards (gym bags, water bottles).
- Ensure goals posts are padded and offset.
- Use mouth guards and eye protection (ASTM F803 standard).

Flag Football

- Avoid over-aggressive play and penalize tackling.
- Remove rings and jewelry.

Figure 1 presents the anatomic location of injury for sports-related injuries. The knee was involved in more than a quarter of the injuries (28.1%), followed by the wrist and hand (15.1%), ankle and foot (13.1%), and shoulder (12.3%).

Figure 1. Distribution of anatomic location for sports-related injuries air evacuated from Operation Iraqi Freedom (March 2003 -June 2006).



▪Inspect the field prior to play to remove rocks or other obstacles and to eliminate holes or other uneven areas.

▪Ensure sidelines are clear of hazards.

▪Wear appropriate athletic shoes or molded cleats.

▪Use mouth guards and eye protection (ASTM F803 standard) for maximum protection.

Softball

▪Warm up with gradually more intense movement drills (running, sprinting, jumping and throwing).

▪Wear a batting helmet that protects your face when batting and running bases.

▪Wear the appropriate mitt for your position. Catchers should always use a catcher's mitt.

▪Catchers should always wear a helmet, face mask, throat guard, long-model chest protector, protective supporter and shin guards.

KEEP YOUR EYE ON SAFETY

BOB VAN ELSBERG
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You protect your eyes from the hazards posed by the environment and the enemy when you're in combat, so why not do the same when you're off duty enjoying your favorite sports? Having spent the last dozen years reading accident reports, I can tell you they are liberally sprinkled with examples of eyes getting poked by fingers during sports games. And it's not just fingers that can get you. A friend lost almost all his vision in one eye when a softball grounder he was chasing bounced up and hit him in the face.

Since you only get one pair of eyes in this life, it's a good idea to protect them. Here are some suggestions from the U.S. Army Center for Health Promotion and Preventive Medicine for protective eyewear tailored to your favorite sports:

Baseball

▪Use a polycarbonate face shield attached to the helmet in combination with sports spectacles with polycarbonate lenses worn under the face shield for batting and running the bases. American Standard for Testing and Materials (ASTM) Standard F910 covers eye and face protection for younger baseball players and ASTM Standard F803 covers eye protection for adult players.

Basketball

▪Use a sports eye guard with polycarbonate lenses and side shields meeting ASTM Standard F803. Frames without side shields are not recommended because of the possibility of a finger entering the open spaces in the frame and injuring an eye.

Football

▪Wear a polycarbonate shield attached over a wire faceguard. Wearing sports spectacles meeting ASTM Standard F803 with polycarbonate lenses under the shield will provide additional protection.

Hockey

▪Hockey players should use protectors meeting ASTM Standard F513 and ASTM Standard F1587 for eye and face protection.

Paintball

▪Paintball players should use eye protectors meeting ASTM Standard F1776.

Soccer

▪Soccer players should use sports spectacles with polycarbonate lenses.

Skiing, Alpine

▪Skiers should use protectors meeting ASTM Standard F659 for alpine skier eye protection.

Racquet Sports

▪Choose eye protectors meeting ASTM Standard F803 for racquetball, tennis, squash and the other sports mentioned previously. The Tri-Service Vision Conservation and Readiness Program recommends players not use lensless protectors for racquet sports.

Other Recreational Activities

Should your recreational activities lean more to auto mechanics or woodworking, use good protective eyewear meeting American National Standards Institute Standard Z87.1, *Occupational and Educational Personal Eye and Face Protection Devices*.

About Your MCEP

Don't have a nearby sporting goods store in your corner of the sandbox? The good news is your military combat eye protection gear is an acceptable option, according to Dr. James W. Stout, a member of the Tri-Service Vision Conservation and Readiness Program. Stout, who works for USACHPPM, pointed out that MCEP provides as much as six times the impact resistance offered by normal industrial safety glasses.

Want to get eyeball-to-eyeball with the facts? Check out Department of the Army Pamphlet 40-506, *The Army Vision Conservation and Readiness Program*. What—you say you don't have a copy in your back pocket? No sweat—just go online and key in http://.apd.army.mil/pdffiles/p40_506.pdf to get the information. While you're surfing the Net, take a few minutes and visit USACHPPM's Web site at http://chppm-www.apgea.army.mil/ for more information on keeping Soldiers safe and healthy. «

Table 3. Comparison of the distribution of fractures, dislocations, sprains/strains, disorders of muscle and tendon, and disorders of the back for the four leading sports activities.

DIAGNOSIS (ICD-9-CM CODE)	BASKETBALL (%)	FOOTBALL (%)	PHYSICAL TRAINING (%)	WEIGHT TRAINING (%)
Fractures (800-839)	23.4	39.9	15.2	4.5
Dislocations (830-839)	23.0	25.0	20.2	5.5
Sprains/strains (840-848)	13.5	6.7	11.6	19.1
Disorders of muscle & tendon (725-729)	21.6	6.7	11.6	37.4

Table 3 compares the distribution of the four leading diagnostic categories for injuries caused by basketball, football, physical training and weight training. The proportions of fractures and dislocations are greatest for football and basketball, followed by physical training. These three sports activities involve more complex movement patterns and a greater potential for falling. Other important diagnoses for physical training injuries that are not presented in Table 3 are disorders of joints (13.5%) and disorders of the back (11.6%), many of which tend to be overuse injuries, rather than traumatic injuries. It is noteworthy that one-third of weight lifting injuries involve of muscles and tendons, primarily involving muscle and tendon tears of the upper extremities.

- Wear appropriate athletic shoes or molded cleats (no spikes).
- Wear eye protection (ASTM F803 standard).
- Inspect the playing field for holes, rocks, glass or other obstacles before each game.
- Use breakaway bases and a double first base to minimize base-running injuries.
- Encourage players to call for fly balls to avoid collisions.

Jogging/Running

- Gradually increase your running frequency, speed, and distance.
- Pace yourself for your fitness level and weather conditions.
- Running shoes should be replaced at least every six months if you run regularly.
- Warm up with appropriate movement drills before running.
- Always jog/run against traffic.
- Wear a reflective belt or vest.
- Don't wear headphones.

TRAIN, DON'T STRAIN

Sports and physical training are great ways for Soldiers to stay in shape. However, they're also among the leading causes of injuries in both deployed and nondeployed Soldiers. Below are just a handful of the dozens of sports-related accident reports found in the U.S. Army Combat Readiness/ Safety Center's Risk Management Information System database.

A Soldier tore her Achilles tendon when she landed awkwardly while playing basketball.

A Soldier fractured his eye socket when he was struck by another player's elbow during a game of flag football.

A Soldier broke his collarbone when he slipped in wet grass while playing soccer.

A Soldier shattered a vertebrae in his neck when he was hit from behind while playing rugby.

A Soldier broke his foot when he landed on another player's foot while attempting to catch a pass during a game of ultimate Frisbee.

Fit to FIGHT

TRACEY RUSSELL
U.S. Army Combat Readiness/Safety Center
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Physical fitness is a critical part of the combat readiness of our Army. In addition to enhancing physical health, participation in sports and physical training provides mental health benefits such as building esprit de corps and is a great form of stress relief for many Soldiers. Unfortunately, participation in sports and PT is also a leading cause of injuries for both deployed and non-deployed Soldiers, resulting in significant lost duty time and a decrease in readiness.

The good news is PT-related fatalities have decreased by 76 percent since fiscal 2005. The majority of these fatalities in the past three years occurred during or shortly after running, jogging or participating in a PT test. While the underlying cause of many of the fatalities is cardiac related, or due to other pre-existing health conditions, it is important to note age is not necessarily an indicator. From the beginning of fiscal 2005, there were 35 PT-related fatalities; 20 percent of those Soldiers were under the age of 25.

According to the injury prevention program at the U.S. Army Center for Health Promotion and Preventive Medicine, sports and PT injuries were the second-leading causes (18 percent) of nonbattle injuries requiring Soldiers to be evacuated by air from Iraq for treatment between 2003 and June 2006. The most common injury-producing activities are basketball, football, PT and weight training, and the most common types of injuries are fractures and dislocations.

There is no single or simple solution to prevent sports injuries, but they can be reduced. Using a semi-rigid brace while playing sports can reduce the probability of Soldiers suffering an ankle injury. The Air Force conducted a pilot test using this brace for intramural sports at two of its installations and found no injuries were suffered by those using these braces.

Leaders, have you recently looked at where your Soldiers are participating in sports activities and PT? Locations with rocky fields, dusty courts, step-offs surrounding basketball courts or no distance between the basketball hoop and the supporting post provide a prime environment for injuries. Engaged leaders familiar with sports and PT hazards using composite risk management, can help ensure Soldiers remain Army Safe and Army Strong! «

Are You Wire for Safe

BOB VAN ELSBERG
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

"What a master electrical engineer I am!" I thought as I knelt and surveyed my handiwork. I'd managed to plug in the Christmas tree lights—including an angel on top of the tree, three miniature electric snowmen, a musical Santa Claus, a Crock-Pot® full of cider, an electrically heated potpourri pot AND our microwave on two extension cords with multiple outlets. And miracle of miracles, I'd been able to hide all the cords by stuffing them beneath the white "snow" blanket at the bottom of the tree. I was so proud. I could dazzle our visitors with all this "Christmas cheer" without distracting them with a pile of extension cords. What a genius I was indeed!

Well, maybe not. The truth is I was probably close to building a bigger fire in my front room than I could in my fireplace! Every year, families "lighting" up their homes to celebrate Christmas wind up lighting their neighborhoods as fire trucks respond. To keep your Christmas cheerful, try following these tips:

Plugs and extension cords

- Polarized plugs have one blade wider than the other, which means there is only one way they can be safely inserted into an outlet. If the plug doesn't fit, resist the temptation to "get a bigger hammer." Instead, consult a certified electrician as it may be necessary to replace your obsolete receptacle.
- Use safety caps on all unused wall and extension cord outlets, particularly when small children are around.
- When you are finished using a small electrical appliance or power tool, unplug it.
- Unplug extension cords that are not in use. The unplugged end in a child's mouth can lead to death or serious injury. Also, pets may be tempted to chew on cords until they wear through the insulation.
- Don't run cords where people walk or under rugs or furniture.
- Insert plugs fully. The prongs should not be exposed when the extension cord is in use.
- Only use cords outdoors that are marked for outdoor use. Use three-pronged, grounded, heavy-duty extension cords.
- Do not overload a circuit. As a general rule, don't plug appliances into the same circuit if the combined wattage exceeds 1500 watts. If the wattage rating isn't on the product, multiply the amps by 125.
- To avoid extension cord overload, add up the wattage rating of all the products plugged into the cord and compare it to the cord's wattage rating.

Other expert advice

Signs of problems in your electric system include blown fuses, tripped circuit breakers, dim or flickering lights, buzzing sounds, odors, hot switch plates, loose plugs and damaged insulation.

- Buy electrical products that are double insulated and approved by a recognized testing lab such as Underwriters Laboratories (UL).
- Don't try to increase your circuit's capacity by replacing a blown fuse with a penny or installing a larger-capacity circuit breaker. You are risking an electrical shock or fire. Call in a professional.
- Know how to change fuses or reset circuit breakers.
- Turn off the switch and/or unplug decorations when replacing light bulbs.«
- Pull a plug from a wall socket by gripping the plug itself, not by yanking the cord.
- Inspect cords for serviceability prior to use and replace any that are cracked or frayed.
- Untangle any twisted cords.
- Keep cords off steam pipes, furnaces, heaters or other hot surfaces.

> "The **TRUTH IS** I was probably **CLOSE** to building a **BIGGER FIRE** in my **FRONT ROOM** that I could in my **FIREPLACE**!"

BURNING DOWN THE HOUSE

CHRIS FRAZIER
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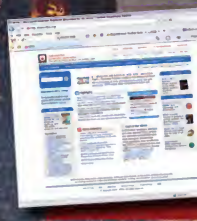
There are few things more miserable than shivering in a tent on a cold winter night. To help kill the chill, many Soldiers in the field will choose to warm their tents with a space heater. The Army has rules and regulations in place regarding space heater usage to keep Soldiers from accidentally sending their tents up in flames. What Soldiers should know, however, is that many of these guidelines also apply to using portable heating devices in their homes.



Portable heating devices, including space heaters, are the leading cause of deaths in home heating equipment-related fires, according to the U.S. Consumer Product Safety Commission. Every year, an estimated 25,000 residential fires are associated with the use of space heaters, and more than 300 people die in these fires. In addition, another 6,000 people receive emergency room care for burn injuries associated with contacting hot surfaces of room heaters, mostly in non-fire situations.

Not surprisingly, the peak months for home heating fires are December, January and February, accounting for 43 percent. As we approach these potentially deadly months, keep these suggestions from the CPSC in mind for the selection, safe use and maintenance of electric, gas, wood and kerosene space heaters:

- Select a space heater with a guard around the flame area or the heating element. This will help keep children, pets and clothing away from the heat source.
- When selecting a heater, look for one that has been tested and certified by a nationally recognized testing laboratory. These heaters have been determined to meet specific safety standards, and manufacturers are required to provide important use and care information to the consumer.
- Buy a heater that is the correct size for the area you want to heat. The wrong size heater could produce more pollutants and may not be an efficient use of energy.
- Read and follow the manufacturer's operating instructions. Keep the owner's manual in a convenient place to refer to when needed.
- Keep children and pets away from space heaters.
- Keep doors open to the rest of the house if you are using an unvented fuel-burning space heater. This helps to prevent pollutant build-up and promotes proper combustion. Even vented heaters require ventilation for proper combustion.
- Never leave a space heater on when you go to sleep or leave the area. For fuel-fired heaters, dangerous levels of carbon monoxide could accumulate or uncontrolled burning could cause a fire.
- Never use or store flammable liquids (such as gasoline) around a space heater. The flammable vapors can flow from one part of the room to another and be ignited by the open flame or by an electrical spark.
- Be aware that mobile homes require specially designed heating equipment. Only electric or vented fuel-fired heaters should be used.
- Place heaters at least three feet away from objects such as bedding, furniture and drapes.
- Never use heaters to dry clothes or shoes. Do not place heaters where towels or other objects could fall on the heater and start a fire.

It's also a good idea to check your smoke detectors monthly and install a carbon monoxide alarm in your home, especially if you use a fuel-burning space heater. Known as the silent killer, CO is a poisonous, colorless, odorless gas. It is produced as a result of the incomplete burning of natural gas and other carbon-containing materials such as kerosene, oil, propane, coal, gasoline and wood.

The symptoms of CO poisoning, which include shortness of breath, nausea, dizziness, lightheadedness and headaches, are often confused with the flu, food poisoning or other illnesses. The effects of CO vary, but people with heart or lung disease, elevated CO blood levels (smokers), the elderly, young children and fetuses are the most susceptible. At high concentration levels, CO can kill an individual in minutes.

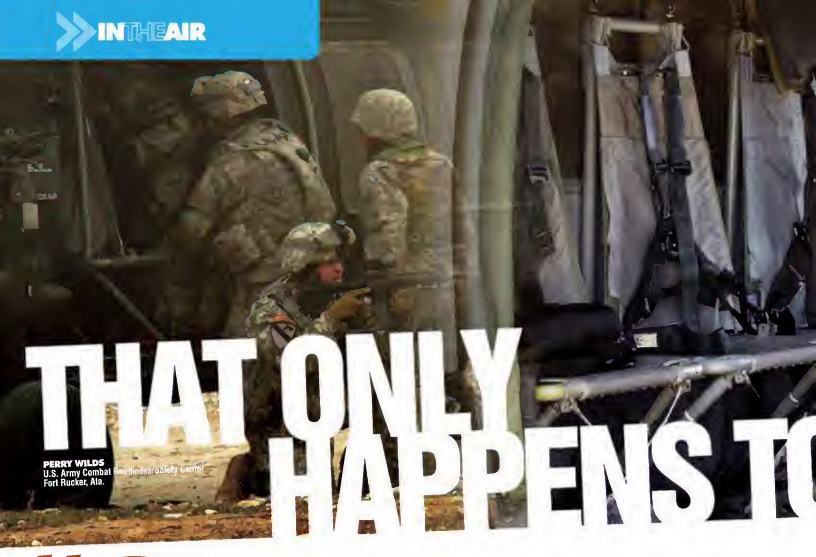
The National Fire Protection Association recommends choosing a CO alarm that has been listed by an independent testing laboratory and installing it in a central location outside each separate sleeping area. If bedrooms are spaced apart, each area will need a CO alarm.

However, the Environmental Protection Agency warns that CO dectectors are not as reliable as smoke dectectors. Because of that, it is important that fuel-burning appliances, such as porrtable space heaters, are properly used and maintained.

Heat is one thing no one wants to do without when the weather turns cold. By following a few simple guidelines and using a little common sense when operating space heaters, you can ensure the only thing that gets toasty in your home are your feet.

FYI

For more information about space heater safety, visit the U.S. Consumer Product Safety Commission Web site at www.cpsc.gov or the National Fire Protection Association Web site at www.nfpa.org.



THAT ONLY HAPPENS TO

PERRY WILDS
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

"Get in, sit down, shut up and hold on!" As a pilot in command, how many times had I briefed that to the troops getting into the back of my aircraft? How many times have I inspected a troop seat to find the energy absorbing wires broken and failed to fill out a quality deficiency report? How many times did I instruct troops to put their ruck in their lap while flying without any thought of what could happen in the event of a crash?

The answer to all these questions is too many times. But let's face it, I'm an aviator and I'm never going to crash. That only happens to the "other guy." Well, unfortunately, it's happening a lot these days.

Aviation life support equipment and crashworthy seating are designed to protect the crew and passengers in military aircraft. If the user exceeds the design weight or size range for personal protective equipment, it may fail when it's needed most. The distribution and changes in body weight and relevant anthropometric measures were evaluated for Soldier and aviator groups. Each aircraft seat was evaluated to determine the crash strength and maximum allowable weight for a given crash pulse. Keep in mind this equipment was tested as a system. Changing any part of the system or overgrossing the design will lead to injuries.

Here are some facts about troop seats in the UH-60 Black Hawk:

- The UH-60 fleet troop seats were designed and tested for carrying a maximum of 250 pounds. The design and testing of the seat is based on the 5th percentile female, the 50th percentile male and the 95th percentile male with 40.3 pounds of equipment. These numbers do not reflect the practice of Soldiers placing their ruck in their lap while flying. Although this issue is not specially addressed in the technical manual, it does address troop provisions: "WARNING, DO NOT STORE ANY ITEMS BELOW SEATS. DURING A CRASH, ANY OBSTRUCTION WILL INCREASE THE PROBABILITY AND SEVERITY OF INJURY."

Based on data collected from more than 760 Soldiers currently deployed to Iraq and Afghanistan, the average weight carried in combat operation (Approach March Load) is 101.31 pounds. When a Soldier places their ruck in their lap, they are far exceeding the design capability of that seat, and that can lead to significant injuries in the event of any type of hard landing.

- The UH-60 troop seats hang from two wires known as hanger pipes. These wires extend through two rollers that provide friction and allow the seat to absorb energy in a crash. When an excessive weight is placed in the seat, friction causes damage due to mechanical wear, corrosion and fretting at the points of contact between the wires and the support fixtures. Small repetitive movements of the parts in contact with the wires' surface cause

THE OTHER GUY

the cadmium plating to wear away, allowing oxidation. Continued relative motion of the parts in contact accelerates fretting, corrosion-pitting and abrasion damage to the wire surfaces. The result is that normal repetitive service loads, combined with the wires' high internal stresses, can lead to stress cracks. As these cracks spread, they reduce the bearing strength of the wires. The wires are no longer capable of supporting the sudden impact loading for which they had been designed.

Remember this the next time you fly; you are the last line of defense when it comes to the safety of Soldiers onboard your aircraft. If you see recurring failures of any parts, don't assume that just because you wrote it up in your logbook that someone has corrected the problem. Also, know your aircraft limitations. Don't overload a system or modify a component. Aircraft life support equipment and crashworthy components have been developed to protect the crew and passengers. However, for these components to work correctly, each user must be within the physical design parameters for the particular component. If an aircrew member or passenger exceeds the design weight and/or size range for the personal protective equipment, it might not function properly. If that PPE malfunctions, the result can be serious injury or death.

Do the right thing all the time. It will be a lot easier to live with yourself when the debris stops flying and you realize that you are now one of the "other guys." «

FACE FIRST IN THE

MALGORZATA ZARZECKA
Picatinny Arsenal, N.J.

There was a huge "thud"—then everything went black. When I woke up, I was lying face down in the snow in a rapidly spreading pool of blood. I must have blacked out again because the next thing I remember is lying on my back on a stretcher and staring at the sky. A snowmobile was pulling my stretcher down the mountain. As I passed my friends, I saw their concerned expressions. That scared me—I wasn't sure how badly I was hurt. Before long, I was on my way to an emergency room. After the doctors examined me, I found out I'd broken my nose. That wasn't the way I'd expected my day on the slopes to end.

Earlier that day, I'd been downhill skiing with friends on a mountain I was very familiar with in northeastern Pennsylvania. I grew up in the Northeast and had plenty of experience skiing on icy, packed powder. The slope I was on wasn't that difficult, but it was extremely crowded that day. Unfortunately for me, there were a lot of first-time skiers and snowboarders around. Many of them felt they were too cool to stay on the bunny slopes and had gotten onto the more advanced slopes, making them even more crowded and, unfortunately, dangerous. Not only did these beginners lack the skills for those slopes, many were ignorant of the Skier's Code of Responsibility (see box at end of this article). One of the code's basic rules is you don't get on the slope without first looking uphill and yielding to people already moving downhill. Common sense should tell you skiers coming downhill have a lot of speed and momentum and getting in their way is a recipe for disaster. However, not everyone on the slopes uses common sense.

As I skied down the slope, I suddenly found a snowboarder heading uphill right in front of me. Normally, I'd be able to maneuver and avoid a collision, but the slopes were so crowded I couldn't turn without hitting somebody. Unable to avoid him, I hit the snowboarder head-on, fell over him and then went face first into the ground.

While he escaped injury from the collision, I didn't get off quite so easily. My impact with the ground left me with a deviated septum. You might say my nose is permanently "out of joint." Along with acquiring my crooked nasal passages, I learned some lessons that day I often pass along to new skiers and snowboarders. They're simple and I'll share them with you:

- If it's your first time on skis, take skiing lessons. It's better to learn from a professional rather than follow your friends down the mountain.
- Don't ski on a trail that is above your level. Not only can you hurt yourself, you can hurt others around you.
- Make sure you have the proper equipment and that it is adjusted and fits properly. When taking children skiing, ensure they wear their helmets. According to the U.S. Consumer Product Safety Commission, children between the ages of 5 and 14 are the most likely skiers to suffer head injuries.
- Don't start drinking until after you're done skiing. I've seen too many "buzzed" skiers slam into trees.
- If you're venturing onto to the steeper slopes or off the trail, don't go alone. Although I passed out after the accident,

SNOW

my friends were there to summon the ski patrol to help me. If I hadn't gotten help immediately, who knows how much blood I would have lost?

■ Stay in control while you are skiing or boarding. Don't leave the bunny slope until you have mastered it and have the skills to try something more challenging. Practice being safe so you and your fellow skiers and snowboard bums can enjoy the slopes for years to come. «

SKIER'S RESPONSIBILITY CODE

Skiing can be enjoyed in many ways. At ski areas you may see people using alpine, snowboard, Telemark, cross-country and other specialized ski equipment, including that used by disabled or other skiers. Regardless how you decide to enjoy the slopes, always show courtesy to others and be aware there are elements of risk in skiing that common sense and personal awareness can help reduce. Observe the code listed below and share with other skiers the responsibility for a great skiing experience.

1. Always stay in control.
2. People ahead of you have the right of way.
3. Stop in a safe place for you and others.
4. Whenever starting downhill or merging, look uphill and yield.
5. Use devices to help prevent runaway equipment.
6. Observe signs and warnings and keep off closed trails.
7. Know how to use the lifts safely.

KNOWLED

DGE INDEX 2007

LOST

AVIATION

CH-47

CLASS A D Model

▪ The aircraft was on approach to a confined mountainous area when the aircraft rotor system contacted vertical terrain.

DO YOU SELECT A LANDING ZONE BY CONSIDERING AIRCRAFT SIZE, SAFETY ZONES AND METT-T (MISSION, ENEMY, TERRAIN, TROOPS AND TIME AVAILABLE)?

OH-58

CLASS C D(R) Model

▪ The aircraft experienced an engine overspeed condition during startup (125 percent for five seconds).

▪ The aircraft sustained damage to one main rotor blade from the firing of an onboard M4 round during aerial gunnery.

UH-60

CLASS C A Model

▪ The aircraft sustained damage during hoist operations. A 250-pound weight used to reseat the hoist cable oscillated and contacted the aircraft below the left fuel door.

▪ Postflight inspection revealed damage to all four MRB tip caps. Damage resulted from possible contact with razor wire while landing.

▪ The aircraft sustained damage to all four MRB tip caps during fast rope insertion/extraction system training.

CLASS A L Model

Three Soldiers were killed when the crew inadvertently encountered instrument meteorological conditions and crashed. A postcrash fire ensued and all three crewmembers received fatal injuries. The aircraft was part of a training flight of three. The U.S. Army Combat Readiness/Safety Center is investigating the accident.

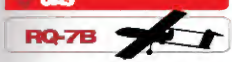
DO YOU ENSURE YOUR AVIATORS ARE PROFICIENT IN ALL METL TASKS?

The aircraft MRBs struck a dirigible cable while traveling from the airfield to the forward arming refueling point.

CLASS C

While the aircraft was taxiing to refuel, its MRB contacted a light pole, resulting in damage to blade tip caps.

UAS



CLASS B

The aerial vehicle operator lost signal with the system while attempting to land and received a TALS BIT FAIL indication. The UAS loitered to expend fuel and landed after deployment of the recovery chute.

The UAS experienced engine failure while on short final to the airbase and impacted the ground about 1,000 to 1,500 feet from landing site.

The UAS was on short final using the tactical automated landing system when the engine failed. The system impacted the ground 1,000 to 1,500 feet short of landing area.

The UAS experienced a left EL-RUDDER servo failure and became unstable. The crew deployed the recovery chute to facilitate landing at a selected site. The system suffered damage during landing and was recovered.

The UAS experienced a generator FAIL during flight, followed by failure of the engine. The recovery chute deployed and the system was recovered with damage.

The UAS was launched with engine at idle. However, before the system reached complete launch pressurization, it made ground contact and rolled into a cement barrier.

CLASS C

The AVO experienced altitude loss during flight and ultimately lost link with the system. The infrared strobe location for the downed system was identified, but the recovery team was unable to locate the system.

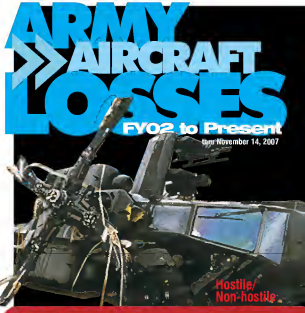
GROUND

CLASS A

A Soldier suffered fatal injuries when the M1126 Stryker he was driving overturned into a canal. Seat belt use was not reported.

A Soldier was killed when his M1117 Armored Security Vehicle slid down a ditch, overturned and caught fire. The driver of the vehicle was injured. Seat belt use was not reported.

An M2A3 Bradley Fighting Vehicle was damaged when the engine overheated and caught fire. The onboard systems failed to extinguish the fire. No injuries were reported. Seat belt use was not reported.



AH-64A/D	12/48
U/MH-60A/L	8/27
C/MH-47	7/16
OH-58D	11/24
TOTAL	38/115

AMV	4/4
ACV	0/0
PERSONNEL INJURY includes weapons handling accidents	2/2
FIRE/ EXPLOSION	0/0
PROPERTY DAMAGE	2/0
TOTAL	8/6

AMV

CLASS A

- Seven Soldiers and two foreign detainees were killed and another Soldier was injured when the LMTV they were riding in flipped off an overpass. The Soldiers were transporting the detainees back from a raid site at the time of the accident.

- A Soldier was killed when his M1151 rolled three times after being hit from behind by another vehicle. The Soldier was the gunner in the HMMWV and was using a gunner restraint. Two other Soldiers in the HMMWV suffered minor injuries.

- A Soldier suffered fatal injuries when his M1025 left the road and overturned. The Soldier, who was serving as the vehicle's gunner, was not wearing the gunner restraint.

- A Soldier died when the M1151 he was riding in swerved to avoid a pothole and overturned. Four other Soldiers were injured in the accident. Seat belt use was not reported.

DO YOU IDENTIFY AND BRIEF ROAD HAZARDS DURING MISSION PLANNING?

- A Soldier was killed after being ejected from an M1114. The driver of the HMMWV was attempting to make a lane change when the vehicle struck a curb and overturned, causing the gunner to be ejected.

Personnel Injury

CLASS A

- A Soldier was killed when the 9 mm weapon he was handling discharged, firing a round into his head.

- A Soldier was killed when he was struck by a round from another Soldier's 22-caliber rifle. The fatally injured Soldier had been handling the weapon when the other Soldier removed it from his hands. The weapon discharged, striking the Soldier in the eye.

- A Soldier was killed when he was struck by a round from another Soldier's weapon. The Soldier was handling his M9 while it was in AMBER status. The slide was pulled back, but the safety was not engaged. When the Soldier pulled the trigger, a round was discharged into the other Soldier's chest.

DO YOUR SOLDIERS PRACTICE PROPER WEAPONS HANDLING PROCEDURES?

CLASS B

- Three Soldiers were handling ammunition for turn-in when a concussion grenade exploded. One Soldier lost his left forearm below the elbow, while the other two suffered shrapnel wounds.

- A Soldier's left-hand ring finger was amputated when a trailer hitch came down on his fingers. The Soldier was attempting to attach the trailer to a 5-ton vehicle when the injury occurred.

- A Soldier was working on an M977 when another Soldier turned the vehicle's ignition switch instead of the light switch. The Soldier's hand was caught in the alternator belt, resulting in the amputation of his finger.

- A Soldier lost a portion of two fingers while performing maintenance on a Joint Explosive Ordnance Disposal Rapid Response Vehicle.

DRIVING

POV

CLASS A

- A private first class was driving his car when he ran off the right side of the road, overcorrected and lost control. The car then went off the left side of the road and overturned twice, landing on its roof and catching fire. The Soldier wasn't

wearing his seat belt and was killed when he was ejected from the car.

- A sergeant was driving a sport utility vehicle when he lost control, crossed the centerline and struck a guardrail. The Soldier wasn't wearing his seat belt and was ejected through the driver-side window. He was transported to a medical facility, where he later died. A half-empty bottle of liquor was found inside his vehicle.

- A specialist and his girlfriend were driving in a POV when a SUV driven by another Soldier crossed the centerline and side-swiped the Mustang at full force. The impact killed the specialist and injured his girlfriend. The Jeep's driver suffered minor injuries, but was arrested for operating a vehicle under the influence of alcohol and charged with vehicular homicide.

DO YOUR SOLDIERS KNOW THEY CAN BE HELD LEGALLY RESPONSIBLE FOR THEIR UNSAFE ACTIONS?

- A female specialist was riding in a POV driven by her husband when they collided with a Jeep that pulled into their path. The specialist, who was nine months pregnant, was taken to a medical center, where the baby was delivered. The specialist later died as a result of her injuries.

- A captain was riding in the bed of a pickup truck with a camper shell with the door to the shell open. When the driver turned left at an intersection and then accelerated, the captain fell out and struck his head, suffering a permanent total disability injury.

POM

- A sergeant was operating his motorcycle when he made a left-hand turn and collided with a cement truck that had right-of-way. The Soldier was taken to a local medical center, where he later died. The Soldier was wearing his helmet and personal protective equipment.

- A sergeant was operating his motorcycle when he collided with a pickup truck that failed to yield right-of-way. The Soldier was thrown from the motorcycle and suffered fatal injuries. The Soldier was wearing a helmet.

- A private first class was operating his motorcycle when a civilian truck turned into his path of travel and caused a head-on collision. The Soldier was ejected from his bike and fatally injured.

- A private was operating his motorcycle at a high rate of speed when he collided with the rear of a POV that entered the lane in front of him. The private had not attended Motorcycle Safety Foundation training and had a daytime-only restricted license. At the time of the accident, the private was home on permanent change of station leave.

- A private first class was operating his motorcycle at an estimated 100 mph in a 45-mph zone when he ran a red light, collided with a van and was ejected into the van's rear passenger window. The Soldier's helmet came off during the crash and was found inside the van. The Soldier was fatally injured during the crash.

DO YOUR SOLDIERS UNDERSTAND PPE WON'T NECESSARILY SAVE THEM IF THEY'RE RECKLESS?

- A staff sergeant was operating his motorcycle between 70 and 90 mph in a 30-mph zone when he struck the driver side of a vehicle as it crossed his path. The Soldier, who was licensed, insured, had attended MSF training and was wearing his helmet and PPE, sustained fatal injuries.

OFF-DUTY

Personnel Injury

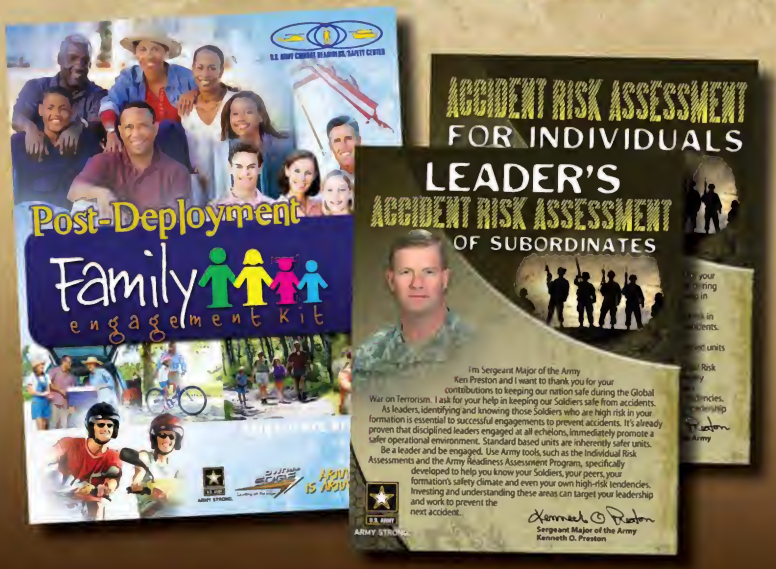
CLASS A

- A second lieutenant was walking along a darkened section of roadway when he was struck and fatally injured by a vehicle traveling in the same direction. The vehicle's driver stopped and rendered assistance. Witnesses stated the lieutenant had been drinking and had chosen to walk rather than drive under the influence.

- A specialist was camping with three other Soldiers when their tent was struck by lightning. After the strike, the Soldiers found the specialist unresponsive and requested emergency assistance. The specialist died at the scene.

Can Families help protect Soldiers from accidents?

Can you measure your or your Soldiers' risk for an accident?



Check out the *Family Engagement Kit* and the *Accident Risk Assessments for Individuals and Leaders* links on the U.S. Army Combat Readiness/Safety Center Web site at https://crc.army.mil.

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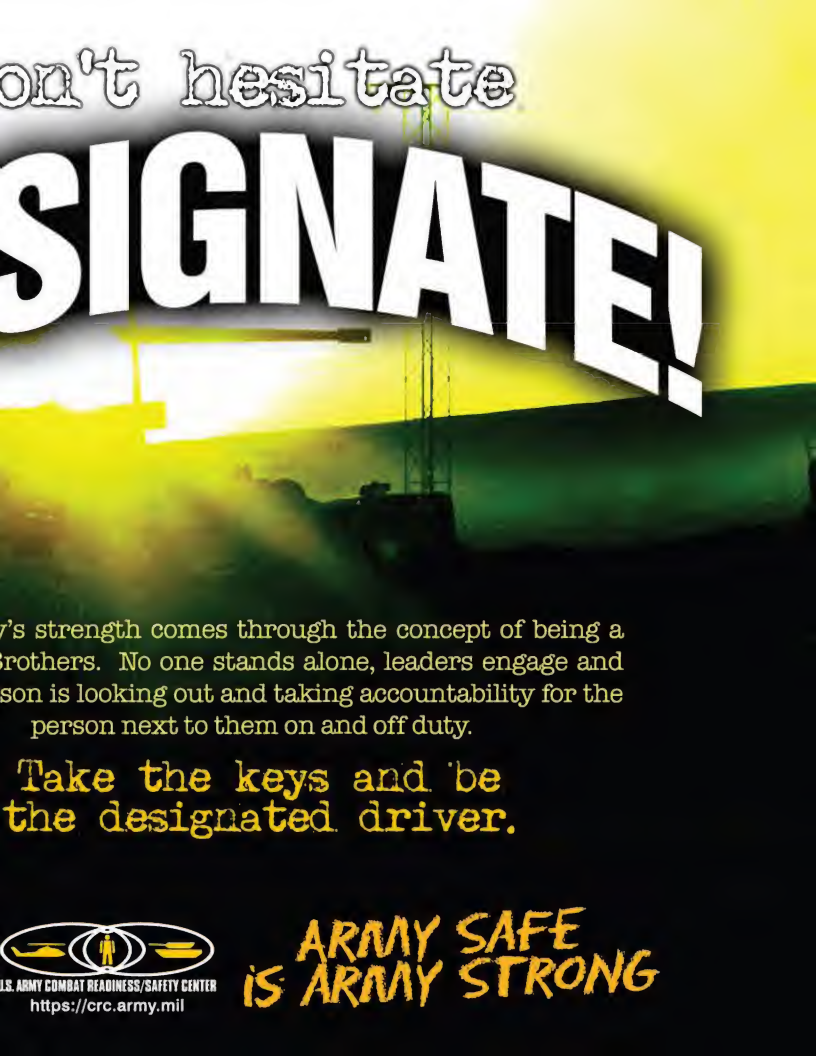
on't hesitate
SIGNATE!
y's strength comes through the concept of being a
Brothers. No one stands alone, leaders engage and
son is looking out and taking accountability for the
person next to them on and off duty.
Take the keys and be
the designated driver.
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ARMY SAFE
IS ARMY STRONG